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PATENT APPLICATION

of

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TRAVEL-READY CHILD RESTRAINT

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## TRAVEL-READY CHILD RESTRAINT

## BACKGROUND

The present disclosure relates to child restraints. More particularly, the present disclosure relates to apparatus for restraining a child seated on a seat in a vehicle.

Some child restraints are used in vehicles to restrain a child in a seated position. The child restraint may be positioned on a seat of the vehicle for use of the child restraint. When not in use, the child restraint may be removed from the vehicle.

## 10 SUMMARY

According to the present disclosure, an apparatus comprises a child restraint and a bag. The child restraint includes a back support configured to support the back of a seated child and a restraint unit configured to restrain the seated child against the back support. The bag is coupled to the child restraint and formed to include an interior storage region and an opening for reception of the back support and the restraint unit through the opening into the interior storage region for storage of the child restraint and for removal of the back support and the restraint unit from the interior storage region through the opening for use of the child restraint.

In some embodiments, the bag can be turned right-side in and inside out. The bag is turned right-side in during reception of the child restraint in the interior storage region and is turned inside out during removal of the child restraint from the interior storage region.

During use of the child restraint, the bag can be stored in a bag receiver. The bag receiver is, for example, a pouch positioned along a rear side of the back support.

Additional features of the present disclosure will become apparent to those skilled in the art upon consideration of the following detailed description exemplifying the best mode of the disclosure as presently perceived.

## 30 BRIEF DESCRIPTION OF THE DRAWINGS

The detailed description particularly refers to the accompanying figures in which:

Fig. 1a is a perspective view showing a front side of a child restraint including a back support configured to support the back of a child (in phantom) seated on a seat of a vehicle and a restraint unit (e.g., a harness unit) configured to restrain the seated child against the back support;

5 Fig. 1b is a perspective view showing a rear side of the child restraint and showing insertion of the child restraint into the vehicle for coupling to the seat by use of lap and shoulder belts configured to extend through slots formed in a plate included in the child restraint;

10 Fig. 1c is a perspective view showing the rear side of the child restraint and showing coupling of the child restraint to the seat (in phantom) by the lap and shoulder belts which extend through slots formed in the plate included in the child restraint;

15 Fig. 2 is a perspective view, with portions broken away, showing pulling on a bag to release the bag from a pouch extending along the rear side of the child restraint to prepare the bag to receive the child restraint therein for transport and storage of the child restraint;

Fig. 3 is a sectional view taken along lines 3-3 of Fig. 2 showing the bag contained in the pouch;

20 Fig. 4 is a perspective view showing deployment of the bag from the pouch;

Fig. 5 is a sectional view taken along lines 5-5 of Fig. 4 showing attachment of a closed end portion of the bag to the pouch;

25 Fig. 6 is a perspective view showing the child restraint turned upside down and the bag turned inside out and showing a pair of arrows representing the direction that panels of the bag will travel to turn the bag right-side in for reception of the child restraint in the bag;

Fig. 7 is a perspective view showing insertion of the child restraint through an opening formed in the bag into an interior storage region formed in the bag;

30 Fig. 8 is a perspective view showing use of a zipper to close the bag and use of a handle to carry the bag with the child restraint (not shown) now positioned in the bag; and

Fig. 9 is a perspective view showing use of a draw-string instead of a zipper to close the bag.

#### DETAILED DESCRIPTION

5 An apparatus 10 includes a child restraint 12 shown in Figs. 1a-1c and a bag 14 shown in Figs. 2-8. Child restraint 12 is configured to restrain a child 16 seated on a seat 18 of, for example, a vehicle, as shown in Fig. 1a. A lap belt 20 and a shoulder belt 22 may be used to secure child restraint 12 on seat 18, as shown, for example, in Fig. 1c, and may be removed from child restraint 12 to allow removal of 10 child restraint 12 from the vehicle. Bag 14 is configured to receive child restraint 12 therein for transport and storage of child restraint 12 upon removal of belts 20, 22 from child restraint 12, as suggested in Figs. 6-8.

15 Child restraint 12 includes a back support 24 and a restraint unit 26, as shown, for example, in Figs. 1a and 2. Back support 24 is configured to support the back of seated child 16. Restraint unit 26 is coupled to back support 24 and configured to restrain seated child 16 against back support 24.

20 Back support 24 includes a relatively hard plate 28 and a relatively soft pad 30, as shown, for example, in Figs. 1b, 1c, 3, and 5. A number of slots 31 shown, for example, in Figs. 1b and 1c are formed in plate 28 to receive lap belt 20 and shoulder belt 22. In the illustrated embodiment, plate 28 is formed to include three slots 31 on one side of plate 28 and three slots 31 on an opposite side of plate 28. To mount child restraint 12 on seat 18, lap belt 20 is routed through, for example, the two bottom slots 31 and shoulder belt 22 is routed through, for example, one of the top slots 31 and a bottom slot 31 located diagonally from the top slot 31 through which 25 shoulder strap 22 extends, as shown, for example, in Fig. 1c.

Pad 30 is contained in a pad cover 32 and is positioned in front of plate 28 to cushion the back of seated child 16, as shown, for example, in Fig. 3. In the illustrated embodiment, pad 30 includes an outer layer 34 made of, for example, polyester fiber and an inner layer 36 made of, for example, urethane foam.

30 Child restraint 12 includes a top pouch 38 and a bottom pouch 40, as shown, for example, in Fig. 2. Pouches 38, 40 are positioned along a rear side 42 of back support 24 and are coupled to pad cover 32. Each pouch 38, 40 receives an end portion of plate 28 therein.

In the illustrated embodiment, restraint unit 26 is a harness unit. Harness unit 26 includes a pair of shoulder straps 44 shown in Figs. 1a and 2. Shoulder straps 44 extend along a front side 46 of back support to restrain the shoulders and legs of seated child 16 and extend along rear side 42 through top and

5 bottom loops 48 (one shown in Figs. 2, 6, and 7) coupled to plate 28. One of shoulder straps 44 is longer than the other shoulder strap 44 to provide a crotch strap 50 shown, for example, in Fig. 1a. Shoulder straps 44 and crotch strap 50 are coupled to a buckle unit 52 shown, for example, in Fig. 1a. A connector strap 54 shown in 2 and 6 extends between shoulder straps 44 and is coupled thereto by stitching 56 and a pair of buckles (not shown) to allow lengthening and shortening of the effective length.

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Child restraint 12 can be put in bag 14 for transport and storage of child restraint 12 and removed from bag 14 for use of child restraint 12, as suggested in Figs. 2-8. To put child restraint 12 in bag 14, bag 14 is turned right-side in (Fig. 8). As bag is turned right-side in, bag 14 receives back support 24 and restraint unit 26

15 through an opening 58 formed in bag 14 into an interior storage region 60 formed in bag 14 as suggested by a solid arrow 62 in Fig. 7. To remove child restraint 12 from bag 14, bag 14 is turned inside out (Fig. 4). As bag 14 is turned inside out, back support 24 and restraint unit 26 are removed from interior storage region 60 through opening 58, as suggested by a phantom arrow 64 in Fig. 7. Bag 14 thus provides

20 means for receiving back support 24 and restraint unit 26 through opening 58 into interior storage region 60 for storage of child restraint 12 and for allowing removal of back support 24 and restraint unit 26 from interior storage region 60 through opening 58 for use of child restraint 12.

Bag 14 is coupled to one of the end portions 66 of back support 24, as

25 shown in Figs. 3-5. In the illustrated embodiment, a closed end portion 68 of bag 14 is coupled to an inner surface 70 of top pouch 38 by stitching 72. Closed end portion 68 includes a pair of inner end edges 73 of a pair of panels 75 included in bag 14 and stitched to one another along side edges 77. Inner end edges 73 are coupled to inner surface 70 by stitching 72.

30 Bag 14 is configured to be positioned in pouch 38 for storage during use of child restraint 12, as shown in Figs. 2 and 3. Pouch 38 may thus be referred to as a bag receiver.

Bag 14 is inside out when it is positioned in pouch 38. It is inside out in that its inner surface 78 (i.e., the surface used to provide interior storage region 60) faces outwardly and its outer surface 80 faces inwardly.

Bag 14 is configured to be removed from pouch 38 to prepare bag 14  
5 for insertion of child restraint 12 into bag 14, as suggested in Figs. 2-5. An openable end portion 74 of bag 14 may be pulled in a bag deployment direction 76 to move bag 14 out of pouch 38. Bag 14 remains inside out upon deployment to the position shown in Fig. 4.

To receive child restraint 12 in bag 14, bag 14 is turned right-side in, as  
10 suggested in Figs. 6-8. In the illustrated embodiment, outer end edges 82 of panels 75 are folded outwardly and moved in the direction of arrows 84 shown in Fig. 6 to turn bag 14 right-side in. As bag 14 is turned right-side in, inner surface 78 faces inwardly to provide interior storage region 60 and outer surface 80 faces outwardly. Child restraint 12 is then inserted through opening 58 into interior storage region 60 for  
15 storage therein.

Once child restraint 12 is positioned in interior storage region 60, a bag closer coupled to openable end portion 74 along outer end edges 82 can be used to close opening 58 and contain child restraint 12 in interior storage region 60. In the illustrated embodiment shown in Fig. 8, the bag closer is a zipper 86 coupled to  
20 openable end portion 74 by stitching 88. In the illustrated embodiment shown in Fig. 9, the bag closer is a draw string 90.

Bag 14 includes a handle 92 for carrying bag 14 when child restraint 12 is positioned in interior storage region 60, as shown in the embodiment illustrated in Fig. 8. Handle 92 includes a handle member 94 coupled to each panel 75 adjacent to outer end edge 82 thereof.